

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells;

wherein material and structure of the pressure chamber is such that the chamber is operable to sustain an operating pressure above 40 psig.

Claim 2 (cancelled).

Claim 3 (currently amended): The apparatus of claim 1 wherein the housing is configured to sustain an operating pressure equal to or greater than 300 psig.

Claim 4 (original): The apparatus of claim 1 2 wherein the housing is configured to sustain an operating pressure equal to or greater than 1000 psig.

Claim 5 (original): The apparatus of claim 1 wherein the base and cover are formed from titanium.

Claim 6 (original): The apparatus of claim 1 wherein the base and cover are formed from aluminum.

Claim 7 (original): The apparatus of claim 1 wherein the base and cover are formed from stainless steel.

Claim 8 (original): The apparatus of claim 1 further comprising a quick release fitting coupled to the inlet port for connecting the inlet port to a pressure source.

Claim 9 (original): The apparatus of claim 1 further comprising a pressure relief valve coupled to an outlet port in communication with said common pressure chamber.

Claim 10 (previously presented): The apparatus of claim 1 wherein the cover is removably attached to the base.

Claim 11 (previously presented): The apparatus of claim 1 wherein external dimensions of the base and cover generally correspond to standard microtiter plate dimensions for use with automation equipment designed for use with microtiter plates.

Claim 12 (original): The apparatus of claim 11 wherein said plurality of reaction wells comprises 96 reaction wells arranged in an 8 by 12 array.

Claim 13 (original): The apparatus of claim 12 wherein the reaction wells each have an internal volume of approximately 2 milliliters.

Claim 14 (original): The apparatus of claim 1 wherein said plurality of reaction wells comprises 12 reaction wells arranged in a 3 by 4 array.

Claim 15 (original): The apparatus of claim 14 wherein each of said reaction wells has an internal volume of approximately 16 milliliters.

Claim 16 (original): The apparatus of claim 1 wherein said plurality of reaction wells are spaced approximately 9 mm apart center to center.

Claim 17 (currently amended): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising a plurality of flow passageways formed therein, each of said plurality of flow passageways configured to provide a direct fluid communication path ~~to provide a primary flow passage~~ between one of said plurality of the reaction wells and said pressure chamber while reducing cross-talk between said plurality of the reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 18 (original): The apparatus of claim 17 wherein the flow restriction device comprises a plurality of vent holes formed therein and aligned with said plurality of reaction wells.

Claim 19 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells; and

a flow restriction device positioned adjacent to said open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells, the flow restriction device comprising a plurality of flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 20 (currently amended): ~~The apparatus of claim 17 wherein the flow restriction device comprises~~ An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending at least partially therethrough;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide a flow passage between said

plurality of reaction wells and said pressure chamber while reducing cross-talk between the reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 21 (original): The apparatus of claim 17 wherein the flow restriction device comprises a rigid member.

Claim 22 (original): The apparatus of claim 17 wherein the flow restriction device comprises an elastomeric sheet.

Claim 23 (original): The apparatus of claim 17 wherein the flow restriction device comprises a porous sheet.

Claim 24 (original): The apparatus of claim 17 wherein the flow restriction device is removably attached to the base member with fastening means.

Claim 25 (original): The apparatus of claim 17 further comprising a plurality of vials inserted into said plurality of reaction wells.

Claim 26 (currently amended): ~~The apparatus of claim 25 further comprising~~An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells;

a plurality of vials inserted into said plurality of reaction wells for receiving reaction components, each of said plurality of vials having a closed lower end and an open upper end for receiving components for the reaction;

a plurality of springs disposed at the bottom of the reaction wells for biasing the vials upward against the flow restriction device;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device comprising a plurality of flow passageways formed therein, each of said plurality of flow passageways configured to provide a fluid communication path between one of said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 27 (original): The apparatus of claim 1 wherein a circumferential groove is formed in one of the base and cover and a gasket is disposed within said groove to provide a seal between the base and the cover.

Claim 28 (original): The apparatus of claim 1 wherein the base and cover each have a periphery flange extending therefrom and configured for mating with the other of the base and cover.

Claim 29 (original): The apparatus of claim 1 further comprising a plurality of vials inserted into said plurality of reaction wells for receiving reaction components.

Claim 30 (original): The apparatus of claim 1 wherein said pressure chamber has a volume of approximately ten cubic inches.

Claim 31 (currently amended): An apparatus for use in parallel synthesis or screening of materials, comprising:

a ~~base member~~ housing ~~having a cavity formed therein, the cavity having dimensions generally corresponding to~~ sized for receiving a microtiter plate comprising a plurality of reaction wells for receiving components of the synthesis or screening;

a cover movable between an open position for receiving the microtiter plate within the housing and a closed position in which the ~~base member~~ housing and the cover form a pressure chamber;

an inlet port in communication with said pressure chamber for supplying fluid pressurized substantially above atmospheric pressure to said pressure chamber to simultaneously pressurize each of the reaction wells from an external pressure source; and

a quick-operating fastening device operable to position the cover in its closed position and hold the cover in sealing engagement with the pressure chamber.

Claim 32 (original): The apparatus of claim 31 wherein said quick-operating fastening device is a four bar mechanism.

Claim 33 (currently amended): The apparatus of claim 31 further comprising a flow restriction device positioned adjacent to ~~said~~ open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells.

Claim 34 (original): The apparatus of claim 33 wherein the flow restriction device comprises a plurality of vent holes formed therein and aligned with said plurality of reaction wells.

Claim 35 (currently amended): The apparatus of claim 33 wherein the flow restriction device comprises a plurality of ~~micromachined flow restrictions formed therein and aligned with said plurality of reaction wells~~ flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well.

Claim 36 (currently amended): ~~The apparatus of claim 33 wherein the flow restriction device comprises~~ An apparatus for use in parallel synthesis or screening of materials, comprising:

a housing sized for receiving a microtiter plate comprising a plurality of reaction wells for receiving components of the synthesis or screening;

a cover movable between an open position for receiving the microtiter plate within the housing and a closed position in which the housing and the cover form a pressure chamber;

an inlet port in communication with said pressure chamber for supplying fluid pressurized substantially above atmospheric pressure to said pressure chamber to pressurize each of the reaction wells from an external pressure source;

a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

a quick-operating fastening device operable to position the cover in its closed position and hold the cover in sealing engagement with the pressure chamber.

Claim 37 (original): The apparatus of claim 31 further comprising a plurality of vials inserted into said plurality of reaction wells for receiving the synthesis or screening materials.

Claim 38 (withdrawn): A method for reacting a plurality of materials in parallel within a reactor vessel having a plurality of reaction wells formed therein each having an open end exposed to a common pressure chamber defined by the reactor vessel, the method comprising:

opening a cover of the reactor vessel;

inserting components into the reaction wells;

closing the cover of the reactor vessel to create a sealed chamber;

supplying a gas substantially above atmospheric pressure that reacts with the components within the reaction wells; and

releasing pressure from the reactor vessel.

Claim 39 (withdrawn): The method of claim 38 wherein supplying a pressurized gas comprises supplying a gas at above 10 psig.

Claim 40 (withdrawn): The method of claim 38 wherein supplying a pressurized gas comprises supplying a gas at below 1000 psig.

Claim 41 (withdrawn): The method of claim 38 further comprising covering a portion of the open ends of the reaction wells to reduce vapor phase cross-talk between the reaction wells.

Claim 42 (currently amended): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising flow passageways formed therein to provide direct fluid

communication ~~a primary flow passage~~ between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 43 (original): The apparatus of claim 42 wherein the flow restriction device comprises a rigid member.

Claim 44 (original): The apparatus of claim 42 wherein the flow restriction device comprises an elastomeric sheet.

Claim 45 (original): The apparatus of claim 42 wherein the flow restriction device comprises a porous sheet.

Claim 46 (original): The apparatus of claim 42 wherein the flow restriction device comprises a plurality of vent holes formed therein and aligned with said plurality of reaction wells.

Claim 47 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; the flow restriction device comprising a plurality of flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 48 (currently amended): ~~The apparatus of claim 42 wherein the flow restriction device comprises~~ An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 49 (original): The apparatus of claim 42 further comprising a plurality of vials inserted into said plurality of reaction wells for receiving reaction components.

Claim 50 (currently amended): ~~The apparatus of claim 49 further comprising~~
An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells;

a plurality of vials inserted into said plurality of reaction wells, each of said plurality of vials having a closed lower end and an open upper end for receiving reaction components;

a plurality of springs disposed at the bottom of the reaction wells for biasing the vials upward against the flow restriction device;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising flow passageways formed therein to provide fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 51 (original): The apparatus of claim 42 wherein said pressurized fluid is pressurized substantially above atmospheric pressure.

Claim 52 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed therein, each of said reaction wells having a permanently closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells;

wherein material and structure of the pressure chamber is such that the chamber is operable to sustain a pressure above 40 psig.

Claim 53 (currently amended): The apparatus of claim 52 wherein said plurality of reaction wells further comprises ~~further comprising~~ a plurality of vials ~~inserted into said plurality of reaction wells~~ for receiving the reaction components.

Claim 54 (new): An apparatus for use in parallel reaction of materials, comprising:

a base comprising a plurality of reaction wells each having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device comprising a plurality of flow passageways formed therein to provide fluid communication paths between said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein said plurality of flow passageways provide the only fluid communication path between said plurality of reaction wells and said pressure chamber.

Claim 55 (new): The apparatus of claim 20 wherein the flow restriction device is positioned adjacent to said open ends of the reaction wells.